

Bell customers harms competition in telecommunications manufacturing in several ways. First, it hampers innovation. A significant body of literature documents that innovation occurs most rapidly when those responsible for developing a new product have maximum flexibility to structure business relationships with their customers.^{34/}

It also unnecessarily inflates production costs. Making products for high technology industries like telecommunications often requires substantial risk taking because of relatively high costs of production in these industries. Strategic alliances between manufacturers and customers allow these risks to

^{34/} See Thomas M. Jorde & David J. Teece, "Rule of Reason Analysis of Horizontal Arrangements: Agreements Designed to Advance Innovation and Commercialize Technology", 61 Antitrust L.J. 579, 582 ("innovation is an interactive, iterative, and interdependent process in which design, manufacturing, and product development all drive research and, at the same time, are highly dependent on research"); Antonello Zanfei, Patterns of Collaborative Innovation in the U.S. Telecommun. Industry After Divestiture, 22 Res. Pol'y 309, 320 (1993) ("effective development of products characterized by high systemic complexity requires a strict collaboration of users, designers, and manufacturers so as to allow feed-back and learning during and after in the introduction of initial design"); Otis Port, "A Smarter Way to Manufacture", Bus. Week, Apr. 30, 1990 at 110 (close collaboration between product makers and product users throughout the manufacturing process pays big dividends: 30%-70% shorter development times; 65%-90% fewer engineering changes; 20%-90% faster time to market; 2-6 times higher overall quality; 20%-110% higher white-collar productivity; 5%-50% higher dollar sales; and 20%-120% higher return on assets"); J. Kline & Nathan Rosenberg, The Positive Sum Strategy 290-91 (N. Rosenberg & R. Landaw eds., 1986).

be shared; this stimulates product development and permits efficient allocation of each specific type of cost to those participants in the alliance who most efficiently can bear that particular category of cost.^{35/}

Prohibiting manufacturers from entering many types of cooperative business relationships with their Bell customers is particularly harmful to small manufacturers like those who participate in the coalition filing these comments. This is because small manufacturers are less likely than their larger competitors to have the skills and financial resources necessary to succeed without entering into cooperative ventures with their customers.^{36/}

A policy that imposes disproportionate pain on small manufacturers is especially damaging to the development of competition in telecommunications manufacturing since small manufacturers are responsible for a disproportionately large amount of innovation. For example, small firms innovate at lower capital

^{35/} See Eric von Hippel, "The Sources of Innovation" 76-92 (1988).

^{36/} See, e.g., U.S. v. West. Elec. Co., 12 F.3d 225, 243 (D.C. Cir. 1993) (cooperative business manufacturer/Bell company partnerships "are likely to enhance competition in telecommunications products by providing a new source of funding for smaller companies with innovative ideas") (Judge Williams dissenting on other grounds).

intensities, are quicker to bring innovations to the market (3.36 years v. 4.32 years for large firms), and are less likely to require government support for their efforts.^{37/} In addition, small firms introduce nearly 2 1/2 times as many new products per \$100 million sales as do large firms (12.2 for small firms v. 5.0 for large firms), and they obtain more patents per R&D dollar (and per sales dollar) than large firms.^{38/} Further, small firms generate 2.4 times more innovations per employee than large firms, and they are twice as likely to make innovations available to other entities.^{39/} Small firms also spend more than twice as much on R&D as a percentage of sales than do large firms (11% v. 5%) and are more likely than large firms to focus their research on meeting the needs of domestic markets

^{37/} See Keith Edwards & William Wallace, "Innovation by Firm Size in Studies of the Bureau of Labor Statistics", Small Business Research Summary No. 104 (U.S.S.B.A., May 1991) (study based upon 132 innovative firms as defined in B.L.S. technological change studies).

^{38/} See John A Hansen, "Utilization of New Data for the Assessment of the Level of Innovation in Small American Manufacturing Firms", Small Business Research Summary No. 101 (U.S.S.B.A. May 1991) (study based on a sample of 598 U.S. manufacturing firms).

^{39/} See Keith L. Edwards & Theodore J. Gordon, "Characterization of Innovations Introduced on the U.S. Market in 1982", Small Business Research Summary No. 62 (U.S.S.B.A., Mar. 1984) (study based upon a random sample of 600 firms from 362 different industries).

rather than foreign markets.^{40/} The small firm innovation rate per employee also is more than 40 percent higher than that of large firms, and this is true especially in high technology industries.^{41/} Employment also is 22 percent more likely to increase following an innovation if it occurs in a small firm.^{42/}

II. There is No Merit to Legal Theories that Would Expand the FCC's Jurisdiction to Define the Public Interest by Permitting It to Consider Factors Other than the Impact of Granting the Application on Competition in the InterLATA Service and Manufacturing Markets

While acknowledging that its duty under Section 271(d)(3)(C) to define the public interest requires that it determine whether granting the application would promote competition in the interLATA service market, the Commission claimed in dicta in its order denying Ameritech's Michigan interLATA service application that it also may consider a panoply of other factors in making its public interest determination. But as we respectfully show below, the grab bag of arguments it makes to support this tentative conclusion lack merit.

^{40/} See Mary S. Koen, "Business Intellectual Property Protection", Small Business Research Summary No. 119 (U.S.S.B.A., Dec. 1991) (study based on a sample of 1,250 firms, generating 376 participants, more than half of which were manufacturing companies).

^{41/} See Zolton J. Acs, "Small Business Economics: A Global Perspective", Challenge 38 (Nov.-Dec. 1992).

^{42/} See Edwards & Gordon, supra.

First, the FCC wrongly contended that courts have held that an agency's statutory authority to define the public interest inherently provides power to define the public interest in whatever manner the agency sees fit.^{43/} In fact, as indicated in Part I above courts have made plain that the scope of an agency's jurisdiction to define the public interest under a particular statute depends upon the precise objective that the subject statute is designed to promote. In the cases cited by the FCC, courts defined the agency's authority to determine the public interest as that term is used in statutes other than Section 271; none of them purported to define the scope of the FCC's power to define the public interest as the term is used in Section 271. As Part I above shows, Congress intended that the public interest determination under Section 271(d)(3)(C) be based on the FCC's conclusions about whether the applicant's involvement in the interLATA service and telecommunications manufacturing markets would promote competition in those markets.

The Commission next wrongly declared in the Ameritech order that legislative history shows that Congress intended Section 271(d)(3)(C) to give the FCC authority to define the public

^{43/} See Applic. of Ameritech Michigan, Memo. Opinion and Order at ¶¶383-84 (FCC 97-298, rel. Aug. 19, 1997) (referring to (Cont'd on next page)

interest in whatever manner it sees fit.^{44/} In fact, the legislative history which the FCC cites - a single sentence in the Senate Committee Report - states only that "[t]he public interest standard is the bedrock of the 1934 Act, and the Committee does not change that underlying premise through the amendments contained in this bill." Rather than expressing any conclusion about the scope of FCC authority to define the public interest for purposes of Section 271(d)(3)(C), this single sentence instead merely notes the Senate Committee's recognition that a public interest standard is used in several sections of the Communications Act.

The Eighth Circuit has rejected the FCC's alternative claim that Section 303(r) of the Communications Act provides it with authority to define the public interest in whatever manner it desires.^{45/} That provision empowers the FCC to "prescribe such restrictions and conditions . . . not inconsistent with law, as may be necessary", but the Eighth Circuit has held that in doing so it "merely suppl[ies] the FCC with ancillary authority. . . to fulfill . . . directives contained elsewhere in the . . .

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court decision in five cases).

^{44/} Id. at ¶385.

^{45/} Id. at ¶401.

[Act]" rather than conferring authority to adopt any substantive regulatory policy.^{46/}

The FCC's claim that Section 271(d)(6) of the Act provides it with jurisdiction to define the public interest lacks merit for the same reason.^{47/} That statute gives the Commission power to take certain specified actions after approving a Bell company's interLATA service application in the event that the Bell company "cease[s] to meet any of the conditions required for . . . approval" of that application. Rather than granting jurisdiction to define the public interest, Section 271(d)(6) instead merely supplies the FCC with authority to enforce whatever substantive regulatory requirements otherwise are within its jurisdiction to promulgate.

Not only does the Commission lack authority to define the public interest in whatever manner it sees fit as shown above, it also lacks power to define the public interest more narrowly as requiring a Bell company to open its local exchange market to competition in ways that go beyond those mandated by the Act.^{48/} The Eighth Circuit already has held that Section 2(b) of the Act

^{46/} Iowa Util. Bd. v. FCC, No. 96-3321, slip op. at 102-03 (8th Cir. July 18, 1997), pets. for rehearing pending.

^{47/} Applic. of Ameritech Mich., supra, at ¶400.

^{48/} Id. at ¶¶389-90.

flatly bars the FCC from mandating any exchange market opening measure unless another statute "unambiguously direct[s] the FCC" to require that particular market opening measure (emphasis added).^{49/} The FCC claims that Section 271(d) inherently provides it with unambiguous authority to require specific exchange market opening measures by authorizing the agency to determine whether granting the application is in the public interest.^{50/} But the claim fails for reasons discussed on page 25 above. The claim that legislative history provides such unambiguous authority^{51/} likewise fails for reasons discussed on pages 25-26 above.

Even if Section 2(b) were not a statutory bar to FCC regulation of the local exchange (which it is as shown above), Section 271 is such a bar. Subsection (c)(2)(B) of that provision sets forth a checklist which consists of 14 specific conditions that must exist in order for a Bell company's exchange market to be deemed open to competition, and subsection (d)(4) provides that the "Commission may not, by rule or otherwise,

^{49/} Iowa v. FCC, supra, at 109. Section 2(b) states that "nothing in this chapter shall be construed to apply or give the Commission jurisdiction with respect to charges, classifications, practices, services, facilities or regulations for or in connection with intrastate communication service. . . ."

^{50/} Applic. of Ameritech Mich., supra, at ¶388-89.

^{51/} Id.

limit or extend the terms used in . . . [that] checklist. . . ."

Requiring a Bell company to open its exchange market to competition in a specific way that is not provided for by the 14-point checklist is, by definition, an effort to extend the terms of that checklist in direct violation of subsection (d)(4).

FCC and Justice Department theories for how to square Section 271(d)(4)'s prohibition against extending the checklist with a requirement that a Bell company open its exchange market in ways beyond those dictated by that checklist must fail. The FCC's first theory is that the agency would not extend the checklist as long as it mandates market opening measures on an ad hoc basis as it considers each separate application rather than mandating that all Bell companies comply with the same additional market opening measures.^{52/} That theory cannot stand. Congress defined the 14 market opening measures that must take place in order for a Bell company's exchange market to be deemed open to competition, and it expressly barred the FCC in Section 271(d)(4) from adding to those measures. The FCC would violate that command no less if it were to impose a 15th market opening measure on a Bell company as part of the agency's ad hoc evaluation of that company's interLATA service application than if it

^{52/} Id. at ¶391.

were to impose the 15th market opening measure on all Bell companies by rule in advance of considering any application.

A second FCC theory for squaring Section 271(d)(4) with the agency's claim that it has power to require exchange market opening measures beyond those mandated by the checklist fares no better than the first. Under that theory, the FCC's Section 271(d)(3)(C) power to determine the public interest is meaningless unless the agency is free to mandate additional exchange market opening measures.^{53/} While the FCC is correct that every provision of a statute should be construed to have meaning,^{54/} denying the FCC power to require exchange market opening measures beyond those specified in the 14-point checklist would not render meaningless its authority to define the public interest. As we explained in Part I above - and as the FCC acknowledges^{55/}

^{53/} Id. at ¶389.

^{54/} See, e.g., Dep't of Rev. v. ACF Industries, 510 U.S. 332, 340-41 (1994); Am. Jur. 2d, Statutes, §250 (1974) (referring to the "cardinal rule of statutory construction that significance and effect should, if possible . . . be accorded every part of . . . [a statute], including every section, paragraph, . . . [and] sentence").

^{55/} Applic. Of Ameritech Mich., supra, at ¶388 ("Our public interest analysis will include an assessment of the effect of BOC entry on competition in the long distance market"); id. at ¶16 ("In determining the extent to which BOC entry would further competition, we would find it more persuasive if parties presented specific information as to how such entry will bring the benefits of competition, including lower prices, to all segments of the long distance market") (emphasis in original).

- the agency has a duty under its public interest jurisdiction to consider whether granting the application will promote inter-LATA service competition. It likewise has a duty to determine whether the Bell company's participation in the telecommunications manufacturing industry will promote competition in that market as we also explain in Part I above. The existence of these two duties invalidates the FCC's argument that its jurisdiction to define the public interest is meaningless unless that jurisdiction also confers power to require specific exchange market opening measures.

The Justice Department's alternative theory lacks merit too since it would render meaningless the prohibition in Section 271(d)(4) against revising the checklist in violation of the requirement that every statute be given meaning.^{56/} While recognizing that Section 271(d)(4) precludes the FCC from requiring exchange market opening measures beyond the 14 checklist items for purposes of Section 271(c), (FCC may grant application only

^{56/} See n. 53, supra. According to the Department, the FCC may find that a grant would harm interLATA competition (and thus is against the public interest) unless each network element and service desired by exchange competitors is available from the applicant (i) in quantities necessary for "effective" competition and (ii) at prices which provide for "economically efficient" competition. "Eval Of the U.S. Dep't of Justice in Response to Applic. of SBC Commun. To Provide In-Region inter-LATA Services in Oklahoma" at 44, 50 (CC Dkt. No. 97-121, May 16, 1997).

if exchange market is competitive), the Department claims that Section 217(d)(4) does not preclude the FCC from dictating additional market opening measures for purposes of Section 271(d)(3)(C) (FCC may grant application only if in the public interest).^{57/} Interpreting Section 271(d)(4) as constraining FCC authority to require exchange market opening measures for purposes of Section 271(c) but not Section 271(d)(3)(C) would render the provision meaningless since the FCC then could deny an application for failure to comply with whatever market opening measures beyond those specified in the checklist it favors notwithstanding Section 271(d)(4).

Not only do the theories under which the FCC and Department would give the FCC power to impose exchange market opening measures under the FCC's public interest jurisdiction lack merit as a matter of law, the Eighth Circuit also has ruled that several specific exchange market opening measures favored by the agencies are beyond the FCC's jurisdiction to mandate. For example, that Court has rejected as unlawful the FCC's proposal to grant an application only if the Bell company provides interconnection and unbundled network elements at prices which are

^{57/} Id at 37 n.44.

based on "total element long run incremental cost".^{58/} It did so by holding that Section 252(d)(1) grants the exclusive power to regulate those prices to state PUCs and Federal courts reviewing state PUC decisions.^{59/} The Eighth Circuit likewise has ruled that the FCC lacks jurisdiction to deny a Bell company's application as against the public interest unless the Bell company permits competing exchange carriers to pick the most favorable terms from each of several interconnection agreements between the Bell company and its exchange service competitors.^{60/} It did so by holding that requiring incumbent exchange carriers to let competitors piece together an interconnection agreement in this manner would thwart local exchange competition in violation of the Act.^{61/}

^{58/} Applic. Of Ameritech Mich., supra, at ¶288; Evaluation of the U.S. Dep't of Justice (Okla. Applic.), supra, at 44.

^{59/} Iowa v. FCC, supra, at 100-14.

^{60/} Applic of Ameritech Mich., supra, at ¶392 (permitting competing exchange carriers to pick the most favorable terms from each of several interconnection agreements could help show that grant of the Bell company's application serves the public interest because it "would demonstrate" that competitive [exchange service] alternatives may develop rapidly throughout a state.

^{61/} Iowa v. FCC, supra, at 114-17. Denying an application as against the public interest if a state or local policy complicates development of exchange competition also plainly is beyond the FCC's jurisdiction. Applic. Of Ameritech Mich., supra, at ¶396. While Section 253(d) authorizes the FCC to preempt enforcement of any such state or local policy, neither
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The FCC's proposal to use its authority to define the public interest as requiring specific exchange market opening measures that the Eighth Circuit already has rejected as beyond the agency's jurisdiction to mandate is so blatantly unlawful that the state public utility commissions took the unusual step late last month of petitioning the Eighth Circuit immediately to issue and enforce its mandate.^{62/} On October 14, the court directed the clerk to issue the mandate and issued an order stating that the "motions to enforce the mandate remain under active consideration and disposition."^{63/}

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that statute nor any other statute gives the FCC authority to deny a Bell company's application as against the public interest due to an unlawful state or local policy.

^{62/} "Pet. of the State Commission Parties and the Nat. Ass'n of Reg. Util. Comm'rs for Issuance and Enforcement of the Mandate", filed in Iowa v. FCC, No. 96-3321 (8th Cir. Sept. 16, 1997). Four other state public utility commissions have informed the Eighth Circuit that they agree with the views of their 29 state agency colleagues. Letter to M. Gans, Clerk of the 8th Cir. (Sept. 24, 1997).

^{63/} Order No. 96-3321 (8th Cir Oct. 14, 1997). USTA and the five Bell companies likewise have petitioned the Eighth Circuit to enforce its order in light of the FCC's apparent intention, as reflected in the Ameritech decision, otherwise to ignore that order. "Pet. For Immediate Issuance and Enforcement of the Mandate" by USTA and the five Bell companies (filed in Iowa v. FCC, supra, Sept. 18, 1997). See also "Statement of GTE in Support of Pets for Issuance and Enforcement of Mandate", filed in Iowa v. FCC, No. 96-3321 (8th Cir. Sept. 23, 1997).

Interestingly, in responding to the state regulators' petition FCC counsel did not defend the Commission's claim in dicta in the Ameritech order that the agency's authority under Section 271(d)(3)(C) to define the public interest provides it with power to act in ways that the Eighth Circuit has held are otherwise beyond its jurisdiction. Instead, FCC counsel claimed only that the FCC's authority under Section 271(d)(3)(A) supplies it with such jurisdiction.^{64/} Even if that were so, the FCC's Section 271(d)(3)(C) authority to define the public interest does not give it power to veto any Eighth Circuit holding as shown above.

III. The FCC's Past Conduct Would Preclude It from Requiring BellSouth to Open Its Exchange Market In Ways Not Mandated By the Statutory Checklist Even If the Agency's Authority to Define the Public Interest Gave It Discretionary Power to Do So In the Absence of Such Past Conduct

Even if Section 271 gave the FCC discretionary authority to deny an application as against the public interest for failure to open the exchange market in ways that the statutory checklist does not require, it still would be unlawful for the agency to exercise that discretionary authority in this case because of its own past actions.

^{64/} "Respondents' Opp. To Petitions for Issuance and Enforcement of the Mandate" at 11-14, filed in Iowa v. FCC, supra, Sept. 29, 1997.

First, denying BellSouth's application as against the public interest for failure to open its exchange market to competition in a way not provided for in the checklist would violate the rule that bars an agency from reversing policy without demonstrating that changed circumstances require reversal.^{65/} For far more than a decade, the FCC repeatedly urged the MFJ court to eliminate the MFJ provision that prohibited Bell companies from providing interLATA service because the agency had found that banishing BOCs from the interLATA service market serves no useful purpose. In 1982, for example, the Commission told the court that prohibiting Bell companies from providing interLATA service is both "unnecessary and unwise".^{66/} "Any provision that precludes any business enterprise from participating in any business activity", the Commission explained, "is a barrier to competition . . . [because it] deprives the public of the benefits that might flow from actual or potential entry by the excluded firm".^{67/} "[T]he proposed restrictions on the divested BOCs", the Commission stated, "would do more harm than

^{65/} Greater Boston Television v. FCC, 444 F.2d (D.C. Cir. 1970).

^{66/} Brief of the Fed. Commun. Comm. as Amicus Curiae on Stipulation and Modification of Final Judgment at 30, U.S. v. West. Elec. Co., No. 82-0192 (D.D.C. Apr. 22, 1982).

^{67/} Id.

good and thus are not in the 'public interest'".^{68/} In 1987, the Commission reaffirmed its finding in this regard, noting that "the record three years after divestiture now establishes that there is little likelihood of competitive harm from BOC entry into most of the markets proscribed by the decree."^{69/} The Commission reiterated this position early this year.^{70/} The FCC also recently dismissed a petition that had been filed nearly

^{68/} Brief of the Fed. Commun. Comm. as Amicus Curiea on Question No. 1 on Stipulation and Modification of Final Judgment at 11, U.S. v. West. Elec. Co., No. 82-0192 (D.D.C. June 14, 1982).

^{69/} Comments of the Fed. Commun. Comm. as Amicus Curiae at 7, U.S. v. West. Elec. Co., No. 82-0192 (D.D.C. Mar. 13, 1987).

^{70/} Regulatory Treatment of LEC Provision of Interexch. Services and Originating in the the LEC's Local Exch. Area, Second Report and Order, supra, at ¶97 ("[t]he existence of demand substitutability supports the conclusion that BOC interLATA affiliates will not have the ability to raise prices by restricting their output"); id. at ¶104 ("applicable . . . safeguards are likely to be sufficient to prevent the BOCs from unfairly monopolizing in-region interLATA service by improperly allocating costs between their monopoly local exchange and exchange access services and their affiliates' competitive interLATA services"); id. at ¶119 (existing "regulatory safeguards will prevent a BOC from discriminating to such an extent that its interLATA affiliate would have the ability . . . to raise the price of in-region . . . interLATA services by restricting output"); id. at ¶126 ("price cap regulation of the BOC's access services sufficiently constrains a BOC's ability to . . . raise prices of interLATA services above competitive levels by restricting its own output of those services"). See also Access Charge Reform, First Report and Order at ¶278 (FCC 97-158 rel. May 16, 1997) ("although an incumbent LEC's control of exchange and exchange access facilities may give it the incentive and ability to engage in a price squeeze [vis-à-vis its interLATA service competitors], we have in place adequate safeguards against such conduct").

three years earlier by BellSouth and four other Bell companies asking the agency to institute a rulemaking to establish safeguards to protect competition in light of Bell company involvement in the interLATA service market. The agency dismissed the petition because it concluded that the Telecommunications Act of 1996 makes the "issues [it] raise[s] . . . moot".^{71/} The FCC necessarily would be reversing its holding that the issues raised in this 1993 petition are moot if it now denies BellSouth's application on the ground that the public interest requires compliance with additional regulatory mandates.

Denying BellSouth's application as against the public interest for failure to open its exchange market in a way not mandated by the checklist also would violate the rule that prohibits the Commission from denying an application based on absence of safeguards if it has had ample opportunity to adopt such safeguards.^{72/} If the FCC were concerned about the adequacy of safeguards, it should have begun a rulemaking proceeding 15 years ago since it stated repeatedly beginning then as shown above that it believed that prohibiting Bell entry into the interLATA service market served no useful purpose. The FCC also could have adopted safeguards in response to an invitation seven

^{71/} Pet. for Rulemaking, 11 FCC Rcd. 4099 (1996).

^{72/} See Geller v. FCC, 610 F.2d 973 (D.C. Cir. 1976).

years ago from the D.C. Circuit that it do so. That invitation came in an order denying Bell company motions to eliminate the MFJ provision barring Bell provision of interLATA service pending FCC consideration of whether then existing safeguards should be "adjusted to take account of BOC entry into the interexchange market . . ."^{73/} The FCC also could have adopted safeguards in response to the 1993 petition discussed above by BellSouth and four other Bell companies asking that it do so. Instead, it chose to dismiss that petition as moot.

^{73/} See U.S. v. West. Elec. Co., 900 F.2d 283, 301 (D.C. Cir. 1990), aff'd sub nom. MCI Commun. Corp. v. U.S., 111 S. Ct. 283 (1990).

CONCLUSION

Granting BellSouth's application to provide interLATA service in South Carolina would serve the public interest since it will promote competition in interLATA service and in telecommunications manufacturing, the two markets whose health Congress asked the agency to consider in determining whether grant of the application is in the public interest.

Respectfully Submitted,

Ad Hoc Coalition of
Telecommunications Manufacturing
Companies and Corporate
Telecommunications Managers

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October 20, 1997

ATTACHMENT NO. 1

PARTICIPANTS IN AD HOC COALITION OF TELECOMMUNICATIONS
MANUFACTURERS AND CORPORATE TELECOMMUNICATIONS MANAGERS
COMMENTING ON APPLICATION BY BELL SOUTH FOR AUTHORITY TO
PROVIDE INTERLATA SERVICE IN SOUTH CAROLINA

A. Telecommunications Manufacturing Companies

<u>Company Name</u>	<u>Headquarters Location</u>
Ambox Inc.	Houston, Texas
American Pipe & Plastics, Inc.	Kirkwood, New York
Axes Technologies, Inc.	Carrollton, Texas
Brite Voice Systems, Inc.	Canton, Massachusetts
California Amplifier, Inc.	Camarillo, California
Eagle Telephonics, Inc.	Bohemia, New York
H & L Instruments	North Hampton, New Hampshire
Helix Limited	Chicago, Illinois
LC Technologies, Inc.	Fairfax, Virginia
Metal-Flex Housing, Inc.	Philadelphia, Pennsylvania
Raytel Inc.	Philadelphia, Pennsylvania
Sequoia Electronics	San Jose, California
Technology Service Group Inc.	Roswell, Georgia
Telect Inc.	Liberty Lake, Washington
Teltrend Inc.	St. Charles, Illinois
XTP Forum	Santa Barbara, California

ATTACHMENT NO. 1 continued

B. Corporate Telecommunications Managers

Name and Title

Company Name

Don Wiczek, Office Manager

The Copps Corp.

J.B. Shah, Dir. Info. Technology

Electroglas, Inc.

J.R. Sheedy, Dir. Corp.
Telecommunications

Walgreen Co.

Jeff Schaal, Data Communications
Manager

Willamette Industries, Inc.

ATTACHMENT NO. 2